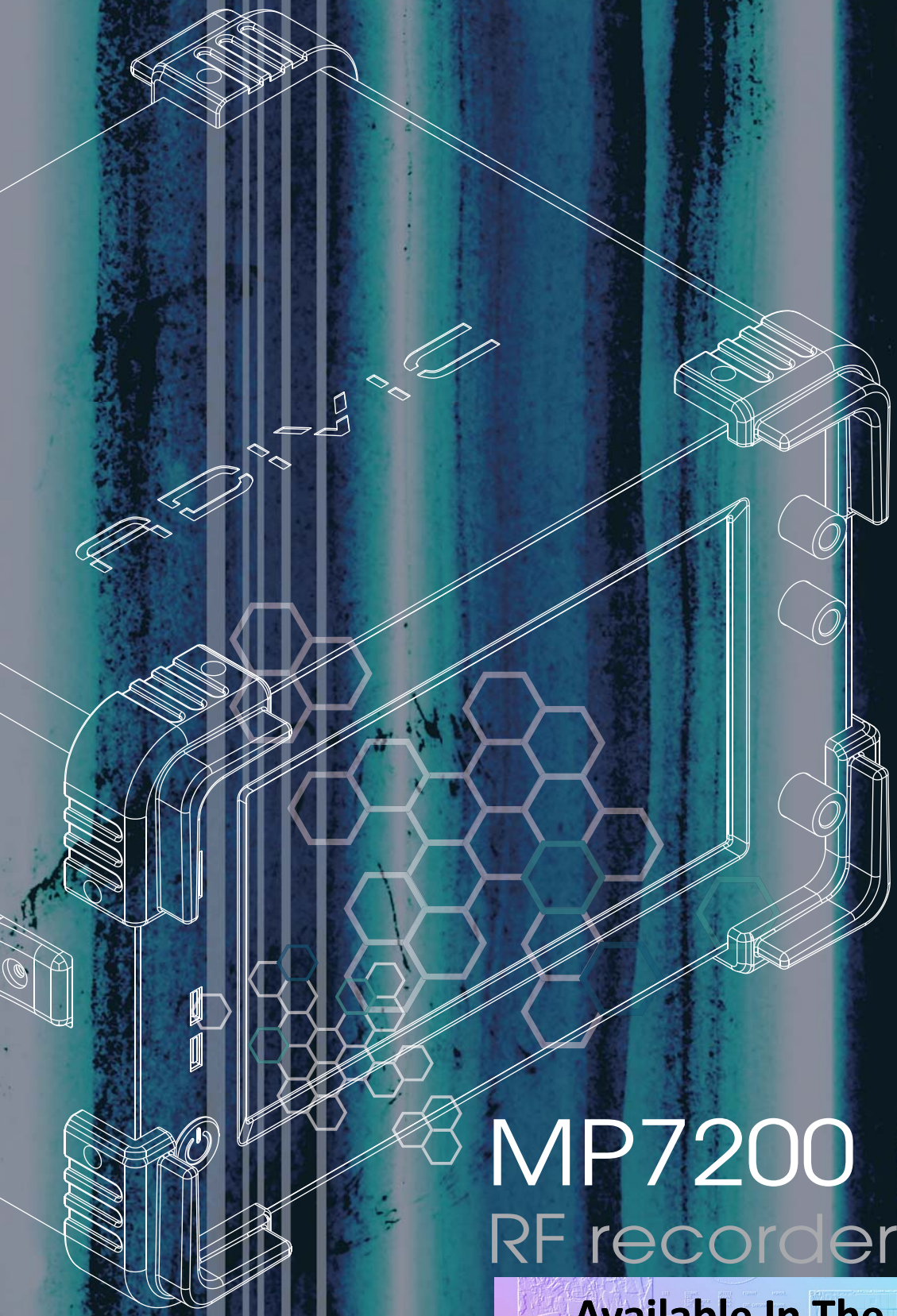
ADIVIC
RF Technology Architect



MP7200

RF recorder / Player

Available In The Americas
From Leader Instruments!

International USA call : 1 (714) 527-9300
Toll Free USA Only : 1 (800) 645-5104
Web : http://www.LeaderUSA.com
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Idea

All of ADIVIC MP7 Series, with its small size and light weight design, can be easily hand-carried to airplane cabin. All MP7 Series adopt user-friendly TFT-LCD touch screen. MP7200 RF recorder and player system covers the frequency spectrum from 25MHz to 2.7GHz.It satisfies various wireless communication applications. The RF recorder can support a large range of digital or analog modulation signals in the frequency spectrum. The RF signal can be stored in a large size HDD. Those all can be analyzed via MATLAB software or played RF signal by MP7200 or MP9200 RF player.

With the bandwidth of acquisition 24MHz, it allows the users to record and analyze the wanted channel signal, adjacent channel signal, noise/fading signal and any distortion signals accordingly.

Introduction

ADIVIC RF Recorder, MP7 SERIES is an exquisite RF- engineering tool for both field testing and performance testing. MP7200 is engineered for all existing RF communications and all modulation schemes, analogue and digital. MP7200 is capable of RF signal real-time record and play.

Design

The RF recorder incorporates a hardware capture module covering the frequency spectrum from 25MHz to 2.7GHz. MP7200 has two RF input interfaces which can support active and passive antenna types. The swap HDD and eSATA interface can easily extend the storage ability.
Each recording can be easily named via the friendly UI. Remote control function can be operated via Ethernet RJ45 interface. MP7200 RF player also supports segment play function. Users can set any start and stop points in any RF file to play.

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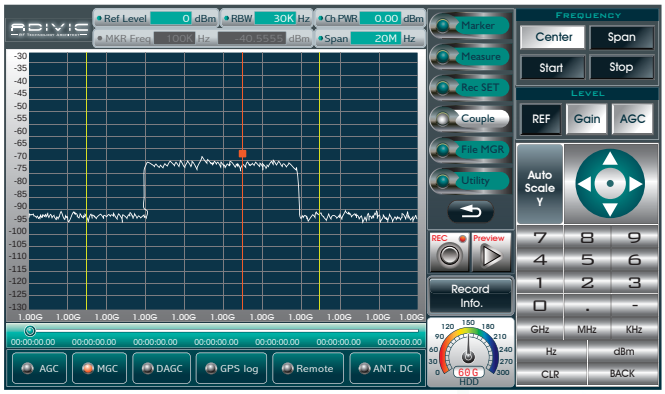
Application

GPS location log function can support the recordings of the GPS NEMA. The data can be transmitted via Ethernet to other PCs installed with Google Earth software and ADIVIC's utility software, and users can freely define the rate of GPS location update according to each recording length and mobile speed. It helps users to see clearly the geographical condition via Google earth. Users can free download Google Earth software from Google web. Please notice that PCs need to be connected to the Internet to get the Google Earth map data during operation.

UI



Cooperation

DIGITAL TV LABS
European Digital Experts

Digital Television Virtual Field Testing

Adivic cooperates with Digital TV Labs in the UK to provide the Digital Broadcasting Signal Virtual Field Testing via Adivic RF recorder/player solution. Through its continuous field tours across Europe, Digital TV Labs has built a large library of RF recordings from some of Europe's most challenging sites. Using spectrum analysis at the test sites, analog and digital interferers are also measured, so these can be played back simultaneously with the RF recordings to ensure a faithful reproduction of the real RF spectrum characteristics. DVB-T, DVB-H,DVB-T2 and analogue hybrid front-ends can now be tested against a huge library of RF ADIVIC RF Recorder Test System recordings in hours rather than weeks, ensuring that receivers operate correctly in marginal signal conditions. Tests are completely repeatable to allow any issues to be quickly understood and resolved.

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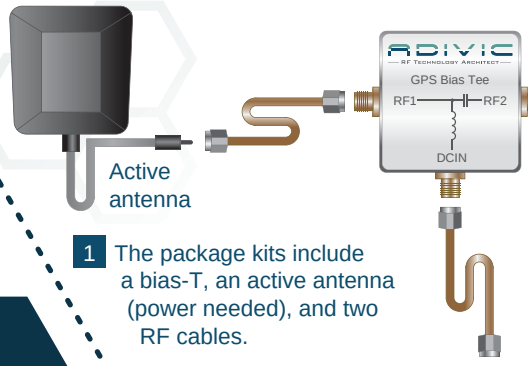
GPS Signal Recorder Scenario

ADIVIC, GPS Option allows MP7200 to record low-power-level signals, such as GPS signals with its package kits. An active antenna is used in this case, however via the passive input port to the recorder in order to get the maximum gain. The following instructions will guide you to set up the kits properly :

The GPS Option Package Setup Instruction



1 The package kits include a bias-T, an active antenna (power needed), and two RF cables.

2 Set up the cables and the antenna to the bias-T as the figure indicated below.

3 Connect the RF signal input to the RX-Passive Port.

Feature

- FREQUENCY COVERAGE: 25MHz to 2.7GHz
- ADJUSTABLE BANDWIDTH FROM 1MHz TO 20MHz
- SAMPLE RATE:100MS/s
- RESOLUTION: 14 BIT
- NOISE FLOOR: < -155dBm/Hz
- SUPPORTS MINIMUM RECORDING UP TO 100 MINS
- CONVENIENT MOBILE FIELD TESTING SOLUTION FOR DTV AND GPS
- SPECTRUM ANALYZER
- eSATA INTERFACE FOR EXTERNAL STORAGES.
- SWAP INTERNAL SATA 2.5” HDD
- SUPPORTS GPS NEMA DATA LOGGING RECORDING
- 10.2” TOUCH SCREEN
- RF FILE FORMAT SUPPORT MATLAB SOFTWARE ANALYZER
- FILE SEGMENT PLAY FUNCTION

Standard

Worldwide Radio Broadcasting Standard

FM/RDS/TMC
IBOC - HD Radio
XM Satellite Radio
Sirius Radio
DAB

Worldwide Navigation Standard

GPS
CNSS
CLONASS
GALILEO

Worldwide TV Broadcasting Standard

DVB-T/H
DVB-T2
DVB-SH
CMMB
ISDB-T
ISDB-TSB
MediaFLO
ATSC-MH
T-DMB
DVB-C
DVB-C2
OPEN Cable
ATSC
DTMB
NTSC
PAL
SECAM

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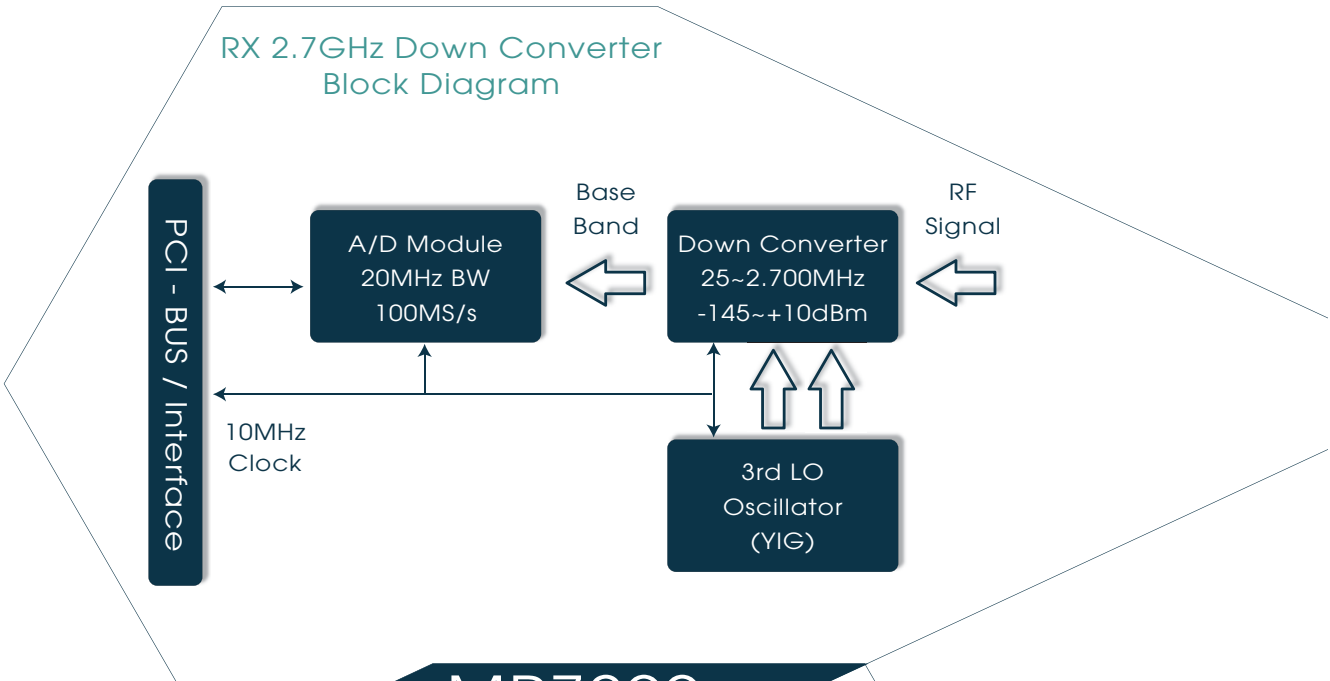
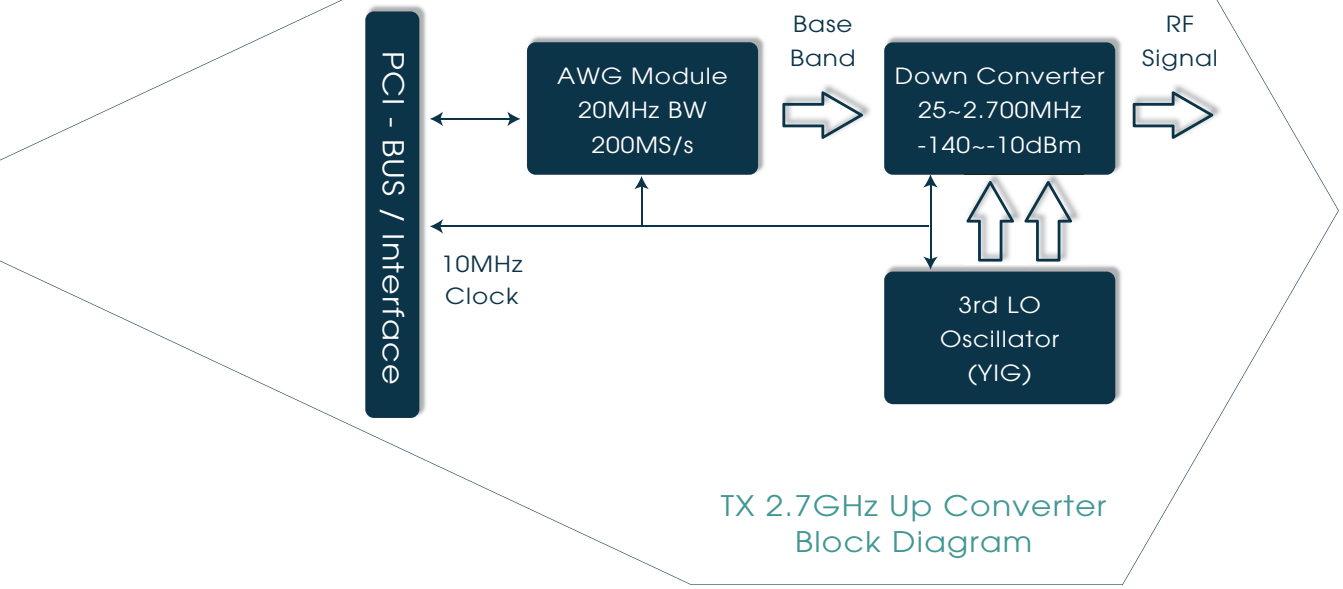


MP7200

SYSTEM Block Diagram



TX 2.7GHz Up Converter
Block Diagram

	MP7100	MP7200	MP9200
Model	RF Recorder	RF Recorder/Player	RF Player
TFT Touch Screen	Capacity	Capacity	Resistive
Frequency	48MHz-1GHz 1575.42MHz	25MHz-2.7GHz	25MHz-2.7GHz
Bandwidth	24MHz	20MHz	20MHz
Record	◆	◆	
Play		◆	◆
Segment Play		◆	◆
SAI* HDD	◆		
SWAP HDD	◆	◆	
Power	DC 9V to 36V 120W	AC 100-240V	AC 100-240V
Size	L:27.8xW:24.2xH:23.6 cm	L:34.6xW:30.2xH:22.9 cm	L:50xW:45xH:20 cm
Weight approx	7Kgw	12Kgw	18Kgw

*Shock Absorber of Independent HDD Mechanism

MP7200 2.7 GHz RF Signal Analyzer Specifications

Frequency

Frequency range .....25MHz to 2.7 GHz
Real-time bandwidth.....1~20 MHz
Frequency resolution.....1KHz step minimum
Resolution bandwidth (RBW).....Fully adjustable (100 Hz to 3MHz)
Warm-up time (typical).....30 minutes
Temperature stability .....±20 ppb maximum
Initial achievable accuracy.....±50 ppb maximum
Aging
Per year.....±100 ppb maximum
Per day.....±1 ppb maximum
Initial achievable accuracy.....±50 ppb maximum

Spectral purity

Phase Noise@1 kHz offset, 1GHz.....<-80 dBc/Hz

RF input Spurious Response.....<-90 dBm

Noise Density

Passive Port (Gain : 40dB/100MHz).....<-160dBm/Hz
Active Port (Gain : 20dB/100MHz).....<-145dBm/Hz

Amplitude(Passive Port)

Input level Accuracy (15 to 35°C).....<+/- 1dB
Input signal range@CW mode.....-145 dBm~-30 dBm
Gain Range.....0~+40 dB@ 5dB step
Input level resolution.....0.01dB
Maximum DC input.....±50 VDC
Group delay.....30 ns Typical

Amplitude (Active Port)

Input level Accuracy (15 to 35°C).....<+/- 1dB
Input signal range @CW mode.....-135 dBm~+10 dBm
Gain Range.....-5~+20 dB@ 5dB step
Input level resolution.....0.01dB
DC Voltage Output Range.....0~+10V@0.1Vstep
Group delay.....30 ns Typical

RF input

Passive RF input .....50ohm , AC-coupled N female
Active RF input .....50ohm , DC-coupled N female

IF Band

Resolution.....14 bits
Sample rate.....100MS/s

Storage

Storage.....640 GByte

Calibration

Calibration .....1 year

Environment

Operating temperature .....0 to +50°C
Relative humidity.....10 to 90%
Storage temperature .....-20 to 70 °C
Relative humidity.....5 to 95%

MP7200 2.7 GHz RF Signal generator Specifications

Frequency Characteristics

Frequency range .....25MHz to 2.7 GHz
Real-time bandwidth (Digital vector modulation bandwidth) .....20 MHz maximum
Frequency resolution.....1KHz step minimum
Warm-up time (typical) .....30 minutes
Temperature stability.....±20 ppb maximum
Per year.....±100 ppb maximum
Per day .....±1 ppb maximum
Initial achievable accuracy.....±50 ppb maximum

Spectral purity

Phase Noise@1KHz offset, 1Ghz.....<-80 dBc/Hz

Spurious Responses

Second harmonic.....< –40 dBc
Output third-order distortion (IMD)
(two -13 dBm tones, >200 kHz apart).....-70 dBc Typical
LO leakage.....<-80dBm

RF Output Characteristics

Output power range .....-145 dBm to -10 dBm
Amplitude resolution.....0.1 dB step minimum
Amplitude Accuracy.....<+/-1 dB -100dBm~-10dBm
<+/-2 dB <-100dBm
Output Impedance.....50 ohm

Overload protection on RF output

Maximum reverse RF power .....1 W maximum
Maximum DC input.....±50 VDC

Noise Floor@1GHz

-40dBm output power .....<-150dBm/Hz Typical
-50dBm output power.....<-160dBm/Hz Typical

Flatness

IF Band(20MHz) flatness.....1 dB Typical
Group delay.....30 ns Typical

RF Output

RF Output..... .....50ohm , AC-coupled N female

IF Band

Resolution.....14 bits
Sample rate.....100MS/s

Calibration

Calibration .....1 year

Operating Environment

Operating temperature .....0 to +50°C
Relative humidity.....10 to 90%
Storage temperature .....-20 to 70 °C
Relative humidity.....5 to 95%

Power

AC.....100V to 240V

Mechanical

Dimensions.....(L)348mm x (W)302mm x (H)230mm
Weight.....approx 11 kgw

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